NON-PUBLIC?: N
ACCESSION #: 9407120064
LICENSEE EVENT REPORT (LER)

FACILITY NAME: MONTICELLO NUCLEAR GENERATING PLANT PAGE: 1 OF 6

DOCKET NUMBER: 05000263

TITLE: Electrical Storm Disables Plant Equipment on Two Occassions (One Led to a Reactor Scram on Low Condenser Vacuum and the Other Led to a Group 2 Isolation)
EVENT DATE: 06/04/94 LER #: 94-004-00 REPORT DATE: 07/05/94

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Brian Lambert TELEPHONE: (612) 295-1312

COMPONENT FAILURE DESCRIPTION:
CAUSE: C SYSTEM: WF COMPONENT: PT MANUFACTURER: I204
C JE MON G080
REPORTABLE NPRDS: NO
YES

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

An electrical storm caused the loss of the Offgas Recombiner system resulting in loss of condenser vacuum causing a reactor scram. A second storm caused a false upscale trip on the Fuel Pool Monitor causing a Containment Isolation. Plant equipment was repaired. Modifications will be made to make the affected instrumentation less sensitive to electrical storms.

END OF ABSTRACT

Description:

Two lightning strikes occurred causing plant instrumentation to fail. The first event occurred on June 4, 1994, resulting in a reactor scram. The second event occurred on June 20, 1994, resulting in a Group 2 Containment Isolation.

June 4th Event - Reactor Scram

On June 4, 1994, at approximately 2309, while operating at 100% power with the "A" Offgas Recombiner in operation, an electrical disturbance (lightning) caused the failure in the Offgas Recombiner System (EIIS System Code: WF) instrumentation. The failed instrument, PT-7495A, caused one of the Offgas Recombiners (EIIS Component Code: RCB) suction pressure control valve (EIIS Component Code: PCV)(PCV-7496A) to the condenser (EIIS System Code: SG) to open (See Figure 1). This resulted in the recirculation of the offgas back to the condenser. Operators responded properly to the event by reducing reactor power in accordance with the operating procedures. Operators also attempted to place the "B" Offgas Recombiner in service. The failure of PT-7495A was diagnosed by the operators in a timely manner but not in time to prevent the scram. Once the failure was identified, an operator was dispatched to close the valve, PCV-7496A. The valve controller is not located in the control room, but in the hallway outside the Offgas Recombiners. Vacuum was deteriorating rapidly and before the operator could close the valve, the reactor scrammed at 2313 (four minutes after the lightning strike). Reactor power was approximately 60% at the time of the reactor scram.

All control rods (EIIS System Code: AA) responded properly to the reactor scram. Reactor water level decreased below 9 inches, the setpoint for Group 2 and 3 Containment Isolation signals (EIIS System Code: JM). This is normal plant behavior following a scram. The Group 2 signal isolated the secondary containment dampers (EIIS System Code: VA; Component Code: BDMP), primary containment sample valves (EIIS System Code: JM; Component Code: SMV) and initiated the Standby Gas Treatment System (EIIS System Code: WF). The Group 3 signal isolated: the Reactor Water Cleanup System (EIIS System Code: CE) and the Recirculation System Sample Valves (EIIS System Code: AD; Component Code SMV). All automatic actions occurred properly.

The Offgas Recombiner suction Pressure Control Valve was closed and "B" Offgas Recombiner was placed inservice stabilizing the condenser vacuum. The Group 2 and 3 Containment Isolation signals were reset.

June 20th Event - Group 2 Containment Isolation

On June 20, 1994, at approximately 0700, while operating at 100% power, an electrical disturbance (lightning) caused the failure of the "B" Fuel Pool Radiation Monitors (EIIS System Code: JE; Component Code: MON). The lightning caused the monitor to produce an upscale trip resulting in a Group 2 Isolation. The Group 2 Containment Isolation signal isolated the secondary containment dampers, primary containment sample valves and initiated the Standby Gas Treatment System. All automatic actions occurred properly. Operations personnel reset the Group 2 Isolation signal and restored equipment to normal operating status.

Cause:

June 4th Event - Reactor Scram

The electrical storm caused pressure instrument, PT-7495A, to fail high. The pressure control valve (PCV-7496A) opened, attempting to lower the signaled high pressure. This dropped the actual suction pressure for both "A" and "B" Offgas Recombiners (See Figure 1) and directed the air ejector (EIIS Component Code: EJR) output back to the condenser. At this point neither Offgas Recombiner was operable. The vacuum decreased causing the reactor scram on low condenser vacuum.

The location of the strike and path the voltage took is not known.

June 20th Event - Group 2 Isolation

The electrical storm caused the "B" Fuel Pool Radiation Monitors to produce an upscale trip. Lightning was observed to strike the reactor building (EIIS System Code: NG) at the time of the event. A -24 Volt fuse (EIIS Component Code: FU) was found to be failed in the monitor.

Analysis:

June 4th Event - Reactor Scram

This event is being reported under 10 CFR Part 50, Section 50.73.(a)(2)(iv) as the Reactor Protection System actuated and an ESF actuation (Group 2 and 3) occurred.

The Offgas equipment is not safety related and as such had no effect on the health and safety of the public. The Reactor Protection System and Group 2 and 3 Containment Isolations were challenged by this event and

all
erformed properly. Operations personnel responded properly. There were no consequences that affected public health or safety.

This event could not have had more severe consequences regardless of initial conditions.

June 20th Event - Group 2 Isolation

This event is being reported under 10 CFR Part 50, Section 50.73.(a)(2)(iv), as Containment Isolation valves closed in association with the Group 2 Isolation Signal.

This event challenged the Group 2 Isolation. This placed the Secondary Containment in a more conservative mode of operation.

This event could not have had more severe consequences regardless of initial conditions.

Corrective Actions for Both Events:

1. PT-7495A was repaired and placed in service.

2. Pressure transmitter, PT-7495A, will be modified to make this instrument less sensitive to electrical storms.

3. The plant offgas stack was inspected for any possible grounding/lightning protection damage. No damage was found.

4. The "B" Fuel Pool Radiation Monitor (RM-17-453B) was repaired by replacing the blown fuse.

5. Radiation Monitor, RM-17-453B, will be modified to make this instrument less sensitive to electrical storms.

Additional Information:

Failed Component Identification:

Train a Offgas Inlet Pressure Transmitter
Model 332, ITT - Barton

Fuel Pool Radiation Monitor
Model 129B2802G12

General Electric

Previous Similar Event:

The Fuel Pool Radiation Monitor failed during a electrical disturbance on June 25, 1978. However, at that time the Fuel Pool Monitor failure was not reportable.

Past LERs associated with electrical storms are: 76-08 and 78-12, which affected station transformers.

Figure 1 "Offgas Recombiner Inlet" omitted.

Northern States Power Company

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Telephone (612) 330-5500

July 5, 1994

Report Required by
10 CFR Part 50, Section 50.73

US Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Electrical Storm Disables Plant Equipment on Two Occasions
(One Led to a Reactor Scram on Low Condenser Vacuum
and the Other Led to a Group 2 Isolation)

The Licensee Event Report for this occurrence is attached. This report contains the following new commitments to the NRC.

Pressure transmitter, PT-7495A, will be modified to make this instrument less sensitive to electrical storms.

Radiation Monitor, RM-17-453B, will be modified to make this

instrument less sensitive to electrical storms.

Please contact Mary Engen, Sr Licensing Engineer, at (612) 295-1291 if you require further information.

Roger O Anderson
Director
Licensing and Management Issues

c: Regional Administrator - III, NRC
NRR Project Manager, NRC
Sr Resident Inspector, NRC
State of Minnesota
Attn: Kris Sanda

Attachment

*** END OF DOCUMENT ***